

Amendments to the Claims

1. (currently amended) A high spatial resolution scintigraphic device having collimator with integrated crystals, comprising in succession from an open end of a container (5) coated with a shielding cladding (6) starting from the source of the event to be measured:

a collimator (1) made of a material with high atomic number, internally having a multiplicity of equal conduits (10) of determined length, identified and separated by septa (11) of thickness suited to the photons energy to be detected,

terminating in a common end plane (12) on the opposite side from the source of the event to be measured;

a scintillation crystal structure (2) able to convert the radiation from the source under examination into light radiation;

at least a photomultiplier (3) of the type with crossed anodes or crossed wires receiving the light radiation emitted by the scintillation crystal structure (2) and generating electrical signals proportional to their intensity and identifying the single event position co-ordinates (X,Y);

electronic circuits (4, 7, 8) able to execute the amplification and integration of the signals generated by the photomultiplier (3) for the determination of the event position co-ordinates (XY) and the related energy for their

subsequent transfer to ~~the~~a conversion device and thence to an personal computer (9) which process them and displays them on a monitor in the form of an image, characterised in that said scintillation crystal structure (2) is constituted by a multiplicity of individual crystals (20) with polygonal section, with base faces (21, 22) and lateral surface (23), each integrally integrate in proximity to the end, oriented towards the photomultiplier (3), of each conduit (10) of the collimator (1), each conduit having conforming a polygonal section corresponding to the polygonal section of each individual crystal, and positioned in such a way that all the base faces (21) of the crystals (20) oriented towards the photomultiplier (3) lie in a same plane parallel to said common end plane (12) of the collimator (1).

2.(original) A scintigraphic device as claimed in claim 1, characterised in that each crystal (20) of said multiplicity of individual crystals has at least on its base face (22) received inside the collimator (1), oriented towards the source of the event, and in the interspace between its lateral surfaces (23) and the adjacent septa (11) of the conduit (10) of the collimator (1) which contains it, a layer (24) of optically reflecting and diffusing material.

3. (original) A scintigraphic device as claimed in claim 1, characterised in that said multiplicity of crystals (20), each of which is integrated in a corresponding conduit (10) of the collimator (1), has a crystal end portion (25) projecting beyond said common end plane (12) of the collimator and comprises a planar layer (26) for the rigid connection of all said crystal end portions (25) made of optically reflecting and diffusing material.

4. (original) A scintigraphic device as claimed in claim 1, characterised in that said multiplicity of crystals (20), each of which is integrated in a corresponding conduit (10) of the collimator (1), has said base faces (21) of the crystals (20) oriented towards the photomultiplier (3) totally internal to the conduits (10) and lying on a same parallel plane and underlying said common end plane (12) of the collimator (1); on said base faces (21) of the crystals (20) and on the adjacent surfaces of the septa (11) said conduits (10) between the plane of lay of said base faces (21) and the common end plane (12) of the collimator (1) being present a layer (124) of optically reflecting and diffusing material.

5. (original) A scintigraphic device as claimed in claim 4, characterised in that in the compartments defined between said

base faces (21) of each crystal (20) the respective adjacent surfaces of the septa (11) of said conduits (10) comprised between the plane of lay of the base faces (21) themselves and the common end plane (12) of the collimator (1) is present an optical guide material (27).

6. (original) A scintigraphic device as claimed in claims 2, 3 and 4, characterised in that said optically reflecting and diffusing material is constituted by a synthetic resin based paint.

7. (original) A scintigraphic device as claimed in claim 6, characterised in that said synthetic resin is constituted by an epoxy resin.

8. (original) A scintigraphic device as claimed in claim 1, characterised in that said individual scintillation crystals (20) and said corresponding conduits (10) have corresponding square shaped section.

9. (original) A scintigraphic device as claimed in claim 1, characterised in that said collimator (1) is constructed with multiple modules of pre-set length, the first (13) of which, opposite to said photomultiplier (3), has integrated in the

respective conduit (10) said multiplicity of crystals (20) and at least a consecutive module (14) being longitudinally correspondingly associated to the opposite end, held and guided for the perfect correspondence of the septa (11) by an external jacket element (19).

10. (currently amended) A scintigraphic device as claimed in claim ~~1~~9, characterised in that said external jacket element (19) is made of inert and sterilisable material.

11. (original) A scintigraphic device as claimed in claim 1, characterised in that it comprises a plurality of photomultipliers (3) positioned mutually adjacent and in that it comprises a single collimator (1) dimensioned to correspond to the entire receiving area determined by said plurality of photomultipliers (3).

12. (original) A scintigraphic device as claimed in claim 1, characterised in that it comprises a plurality of photomultipliers (3) positioned mutually adjacent and in that it comprises a corresponding plurality of collimators (15, 16, 17, 18; 115, 116, 117, 118) positioned mutually adjacent and each of them corresponding in section to each of said plurality of photomultipliers.

13. (original) A scintigraphic device as claimed in claim 12, characterised in that said plurality of collimators comprises collimators (150, 160, 170, 170) differentiated in width of the side of the crystal and corresponding width of the side of the relative collimator conduit to one or more of the adjacent collimators.

14. (original) A scintigraphic device as claimed in claim 12, characterised in that said plurality of collimators comprises collimators differentiated by the length of the collimator from one or more of the adjacent collimators.